



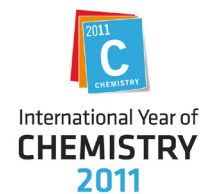
KAYE GREEN

PHOSPHORUS

Element Symbol: **P**

Atomic Number: **15**

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Royal Australian Chemical Institute

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PHOSPHORUS

Element symbol: P

Atomic number: 15

Allotropes: White phosphorus, Red phosphorus, Violet phosphorus, Black phosphorus

The name phosphorus comes from Greek Mythology and means “light bearer” (Latin Lucifer). It was named after the morning star, Venus because white phosphorus, but not red phosphorus, gives off a faint glow when exposed to oxygen.

Due to its reactivity it is never found as a free element in nature.

The discovery of the element is credited to the German alchemist Hennig Brand in 1669 who, at the time was trying to take the piss out of chemistry by evaporating urine in an attempt to discover the philosopher’s stone. Instead he discovered a white material that glowed in the dark and burned brilliantly. Some eleven years later Robert Boyle used the white powder to ignite sulphur tipped wooden splints – now known as matches.

As humans always use such science to the good of mankind, during World War 2 the Allies used phosphorus incendiary bombs to destroy Hamburg, the place where Brand first discovered it. It is also a central part of the deadly nerve gas sarin.

Phosphorus is not found free in nature, or we would all perish like Hamburg. However it is common in many minerals such as apatite, a component of phosphate rock. It mixes well with a number of other elements such as calcium for baking powders, food additives and toothpowder; with chlorine for pesticides and plasticisers; and with sodium as detergents, and of course as phosphate fertilisers.

It has a key biological role in adenosine triphosphate (ATP), the currency of cellular energy; in DNA and RNA as a part of the framework to support the base pairing, and as part of the phospholipids of cell membrane and thus life itself.

Phosphorus is to the biochemist what carbon is to the organic chemist.

Provided by the element sponsor Denis McCann

ARTISTS DESCRIPTION

Due to its high reactivity, phosphorus is never found as a free element on Earth and elemental phosphorus was historically first isolated from the sediment in human urine, and bone ash was an important early phosphate source. Today, the most important commercial use of phosphorus based chemicals is the production of fertilisers to replace the phosphorus that plants remove from the soil. I decided to create a work to express the idea of this cycle.

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